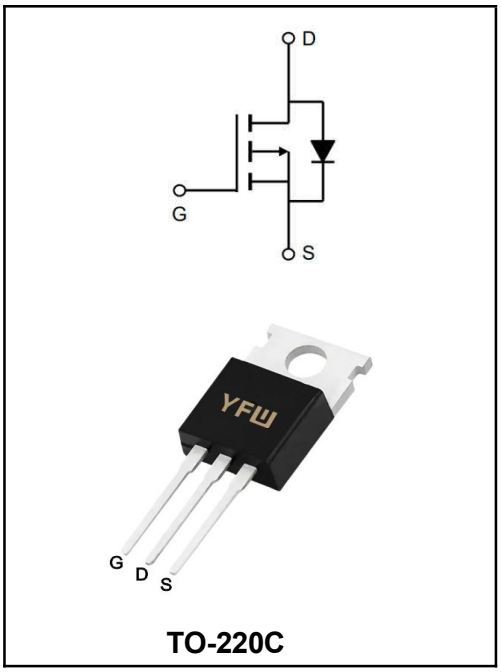
-60V P-Channel Trench Power MOSFET

MAIN CHARACTERISTICS

I_D	-80A
V_{DS}	-60V
R_{DSON}-typ(@V_{GS}=-10V)	＜14mΩ(Typ:9.8mΩ)



TO-220C

FEATURES

- Advanced Trench Technology
- Excellent $R_{DS(ON)}$ and Low Gate Charge

APPLICATIONS

- Lithium battery protection
- Wireless impact
- Mobile phone fast charging

MECHANICAL DATA

- Case: TO-220C/AC
- Mounting Position: Any
- Molded Plastic: UL Flammability Classification Rating 94V-0
- Lead free in compliance with EU RoHS 2011/65/EU directive
- Solder bath temperature 275℃ maximum,10s per JESD 22-B106

Maximum Ratings at Tc=25°C unless otherwise specified

Characteristics	Symbols	Value	Units
Drain-Source Voltage	V_{DS}	-60	V
Gate - Source Voltage	V_{GSS}	±20	V
Continuous Drain Current	I_D	-80	A
Pulsed Drain Current (note1)	I_{DM}	-320	A
Single Pulsed Avalanche Energy	E_{AS}	420	mJ
Power Dissipation	P_D	110	W
Operating Temperature Range	T_J	150	°C
Storage Temperature Range	T_{STG}	-55 to +150	°C
Thermal Resistance Junction to Case	$R_{\theta JC}$	0.7	°C/W
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	60	°C/W

Note1:Pulse test: 300 μs pulse width, 2 % duty cycle

Electrical Characteristics (T_J=25℃, unless otherwise noted)

Characteristics	Test Condition	Symbols	Min	Typ	Max	Units
Drain-Source Breakdown Voltage	V_{GS}=0V, I_D= -250μA	BV_{DSS}	-60	-	-	V
Zero Gate Voltage Drain Current	V_{DS}= -60V, V_{GS}=0V,	I_{DSS}	-	-	-1	μA
Gate to Body Leakage Current	V_{DS}=0V, V_{GS}= ±20V	I_{GSS}	-	-	±100	nA
Gate Threshold Voltage	V_{DS}=V_{GS}, I_D= -250μA	$V_{GS(th)}$	-1	-	-2	V
Static Drain-Source on-Resistance	V_{GS}= -10V, I_D= -10A	$R_{DS(ON)}$	-	9.8	14	mΩ
	V_{GS}= -4.5V, I_D= -5A		-	11.5	16	mΩ
Input Capacitance	V_{DS}=-15V V_{GS}=0V f=1.0MHz	C_{iss}	-	3350	-	pF
Output Capacitance		C_{oss}	-	600	-	
Reverse Transfer Capacitance		C_{rss}	-	23	-	
Turn-on Delay Time(Note2)	V_{DS}= -30V I_D= -30A V_{GS}= -10V R_G=3Ω	$t_{d(on)}$	-	4.1		ns
Turn-on Rise Time(Note2)		T_r	-	2.2		ns
Turn-off Delay Time(Note2)		$t_{d(OFF)}$	-	14.3		ns
Turn-off Fall Time(Note2)		t_f	-	3.5		ns
Total Gate Charge(Note2)	V_{DS}= -30V I_D= -20A V_{GS}= -10V	Q_g	-	53		nC
Gate to Source Charge(Note2)		Q_{gs}	-	10		nC
Gate to Drain Charge(Note2)		Q_{gd}	-	9		nC
Maximun Body-Diode Continuous Current		I_S	-	-	-80	A
Maximun Body-Diode Pulsed Current(Note2)		I_{SM}	-	-	-320	A
Drain to Source Diode Forward Voltage	V_{GS}=0V, I_S= -1A, TJ=25℃	V_{SD}	-	-	-1.2	V

Note2:Pulse test: 300 μs pulse width, 2 % duty cycle

RATINGS AND CHARACTERISTIC CURVES

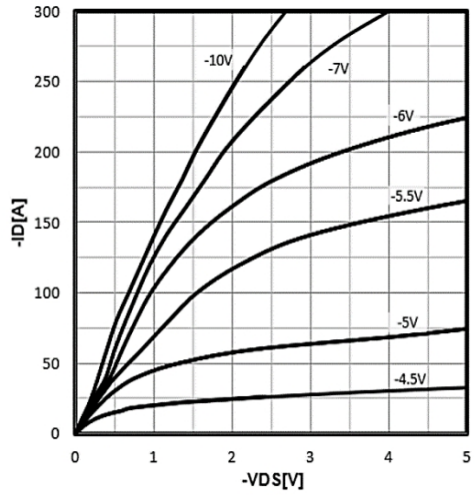


Figure 1. Type. Output Characteristics (Tj=25 ℃)

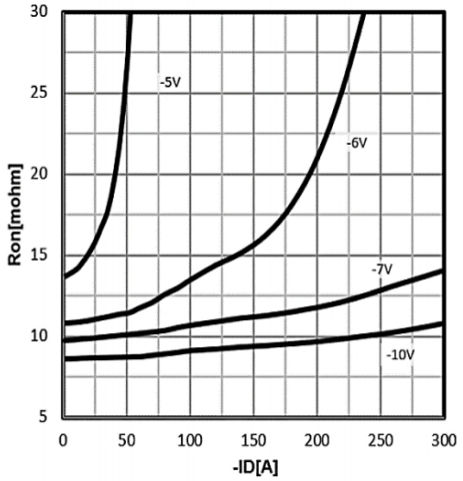


Figure 2. Type. drain-source on resistance

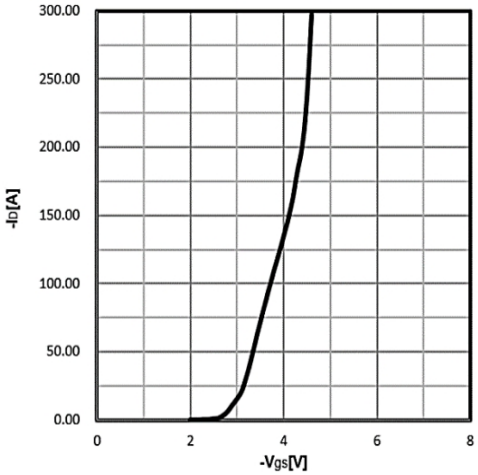


Figure 3. Type. transfer characteristics

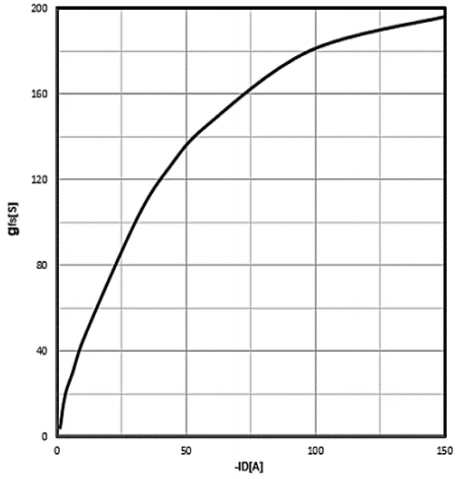


Figure 4. Type. forward transconductance

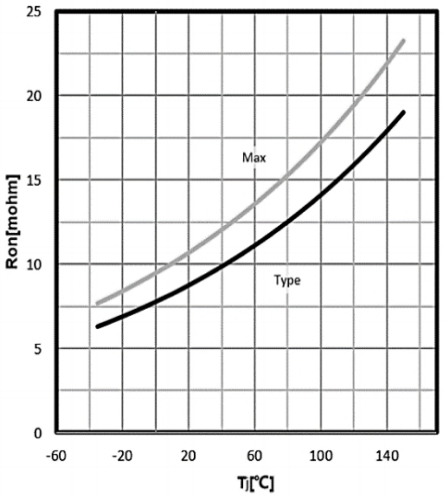


Figure 5. Drain-source on-state resistance
RDS(on) =f(Tj); ID =80A; VGS =10V

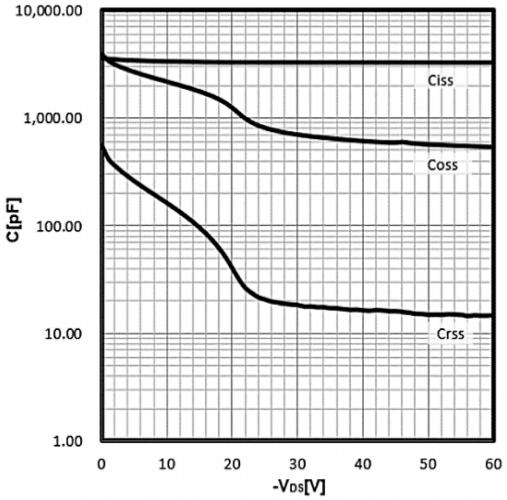


Figure 6 . Body-Diode Characteristics
C=f(VDS); VGS =0V; f=1MHz

RATINGS AND CHARACTERISTIC CURVES

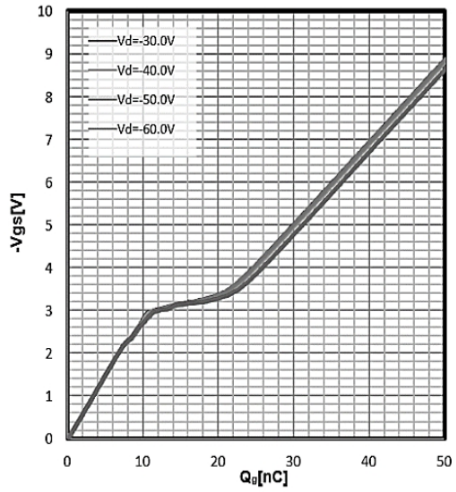


Figure 7. Typ. gate charge
VGS =f(Q gate) ; ID =20A

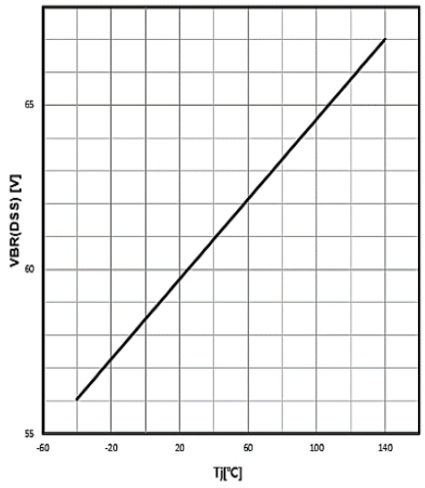


Figure 8. Drain Current Derating
VBR(DSS) =f(T j); I D =250uA

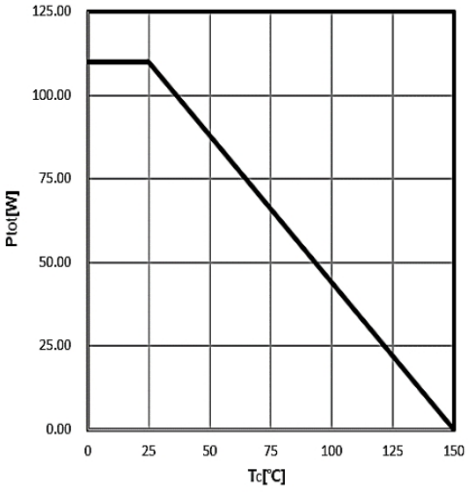


Figure 7. Power Dissipation

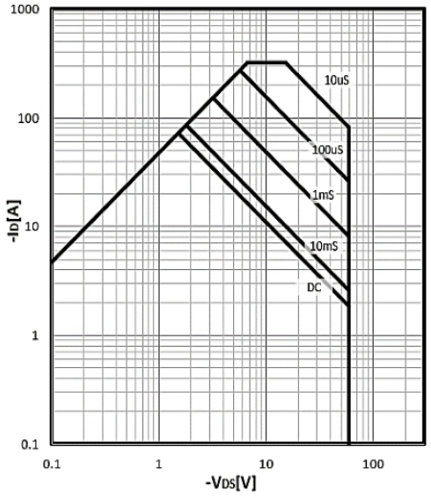


Figure 8. Safe operating area

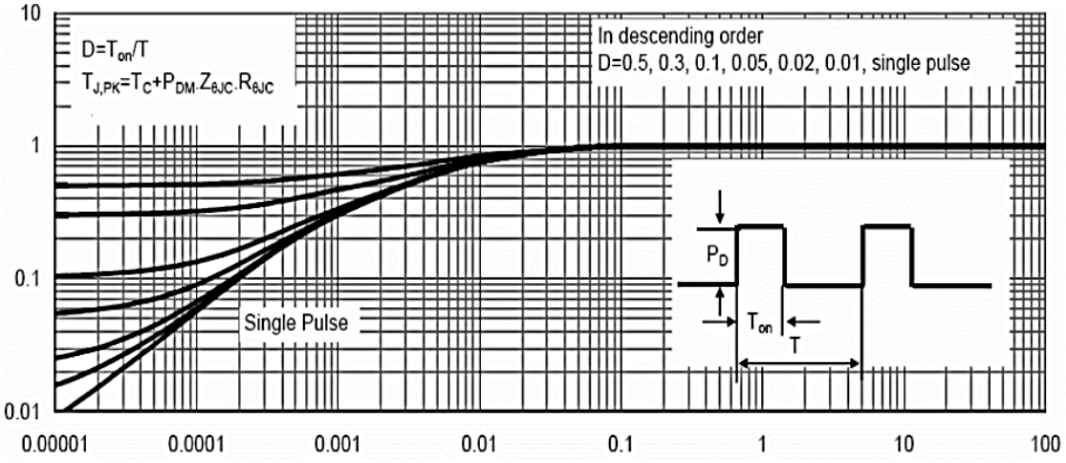
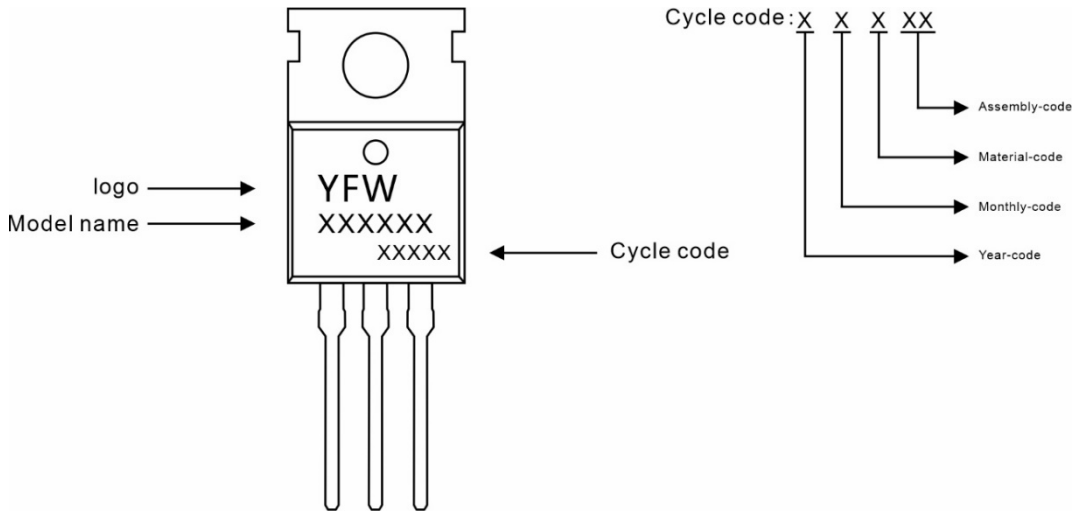


Figure 10. Max. transient thermal impedance

ZthJC =f(tp)

Marking Diagram

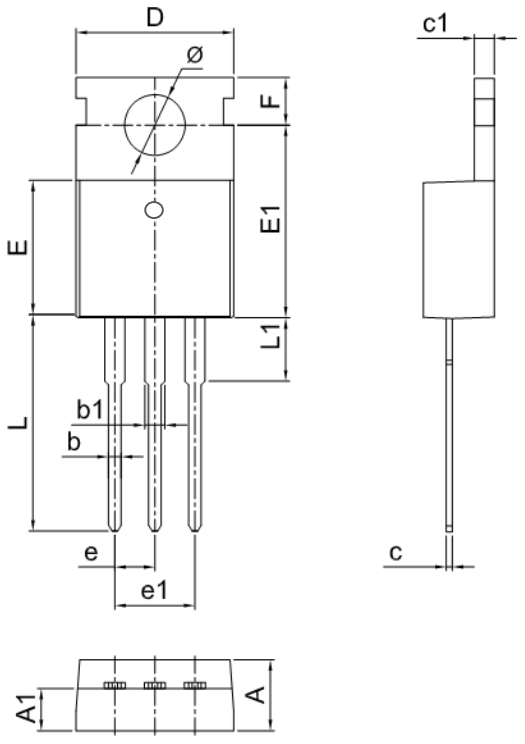


Ordering information

Model name	Package	Unit Weight	Base Quantity	Packing Quantity
YFW80P06AC	TO-220C	0.07oz(1.96g)	50pcs/tube	1000PCS/Box 5000PCS/Carton

Package Dimensions

TO-220C



Dim	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	4.34	4.67	0.171	0.184
A1	2.52	2.82	0.099	0.111
b	0.71	0.91	0.028	0.036
b1	1.17	1.37	0.046	0.054
c	0.30	0.50	0.012	0.020
c1	1.17	1.37	0.046	0.054
D	9.90	10.20	0.390	0.402
E	8.50	8.90	0.335	0.350
E1	12.00	12.50	0.472	0.492
e	2.44	2.64	0.096	0.104
e1	4.88	5.28	0.192	0.208
F	2.60	2.80	0.102	0.110
L	13.20	13.80	0.520	0.543
L1	3.80	4.20	0.150	0.165
Φ	3.60	3.96	0.142	0.156

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